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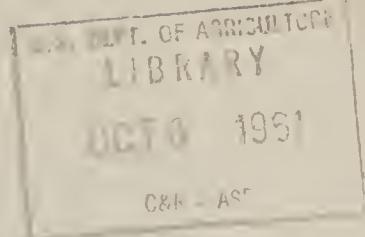
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UNITED STATES DEPARTMENT OF AGRICULTURE  
RURAL ELECTRIFICATION ADMINISTRATION  
WASHINGTON 25, D. C.



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Issue No. 20

**Telephone Engineering Newsletter**

Newsletters are intended to provide a means for answering questions that arise in the field and to inform the field of new developments. They are not intended to be instructions nor to replace in any respect the presently approved channels for establishing requirements and procedures.

**TE and CM Sections in Preparation**

The following sections are being expedited for early publication.

Rev. Section 633	Application of Multi-Pair Distribution Wire
New Section 640	Design of Buried Plant
New Section 641	Construction of Buried Plant
New Section 222	Assignment Line and Station Numbers TPS
Rev. Section 127	Preparation for Cutover
Rev. Section 626	Staking
Rev. Section 627	Route and Pole Numbering
Rev. Section 805	Subscriber Station Protection
Rev. Section 810	Central Office Protection
New Section 822	Electrical Protection of Subscriber Carrier Equipment

**Archie L. Richey Resigns**

Mr. Richey, Consultant in the Outside Plant Section of Telephone Staff Engineering, resigned in December for personal reasons. He was one of the first consultants in the Telephone Program and contributed greatly in the development of REA cable and wire specifications and in other aspects of Outside Plant work. His fellow employees in REA have presented him with a gold watch suitably engraved as a token of their affection.

**New TOM Safety Practices**

The new TOM sections are being printed which cover recommended safety practices in joint use in construction work in TOM 1208.2 and in maintenance work in TOM 1205.3.

**Field Trial Staff Instruction**

A committee of Telephone Engineering Division engineers headed by

Richard L. Allen is preparing a staff instruction which will prescribe the procedures to be followed in making field trials of new types of materials and equipment. It will classify trials by types; provide suggested agreements between participants; the frequency of follow up by REA engineers; and designate the office to be responsible for the follow up.

#### New Kellogg Step-by-Step Dial Office

A newly designed step-by-step dial office has been shown by Kellogg. In appearance it is similar to the former Federal s/s equipment. One new feature in their new board is the reduction from 3 to 2 relays in their line circuit. REA intends to study the new equipment with the object of approving it for trial in an REA borrower's system. It is designated as the Kellogg Type 59 switchboard.

#### Long Span Insulated Aerial Wire Plant

The September 1958 Newsletter, Issue No. 19, described the new concept in long span construction using insulated wires in pairs supported on crossarms in a manner which provides uniform 4 inch spacing between the two wires of a circuit. Circuits are spaced on the crossarms to give 12 inch separation between wires of adjacent circuits. It was stated that span averaging 800 feet would be staked in the trial at Tyler, Minnesota (Minnesota 580).

The staking has been completed and the average span is found to be in the order of 900 feet. About 120 miles of pole line are involved. About 300 miles of wire divided between the three sizes are now being erected. The insulated wires used include .109" - 195 galvanized steel, .080" - 25% copper covered steel and .095 22% copper covered steel.

#### Buried Plant Placed in Year 1958

Projects employing buried plant were placed in 1958 in Louisiana, Texas, Missouri, Illinois, and Minnesota, including a total of approximately 3200 route miles of line. About 66% of this mileage is buried wire. Of the buried wire about 35 percent consists of two separate pairs of wire.

#### Revision of PE-15, Specification for Multi-Pair Distribution Wire, Adding New Sizes

Three additional sizes of MPD wire are provided for in a recent revision of the PE-15 specification. These are the 12 pair, 22 gauge; 18 pair, 22 gauge; and 12 pair, 19 gauge sizes. The 18 pair, 22 gauge and the 12 pair 19 gauge sizes employ a larger support wire than the .109" - 190 grade steel wire used in the others. The new support wire is .134" - 190 grade galvanized

steel having 25 mil or more thickness of polyethylene insulation. The new wire will be available March 15, 1959. The revision of REA TE and CM 633, listed in the first item of this newsletter is to provide the information required in the design and construction of these wires, and to describe and illustrate the fittings that have been made available for the various sizes of MPDW.

#### Transistorized Ringing Generator Trials

The Warren transistorized ringing generator mentioned in Newsletter No. 19 has been in service in the Harrison City, Pennsylvania, exchange of the Murraysville Telephone Company (Pennsylvania 528) since October 22, 1958, and is giving satisfactory results. It is designated as the TMR-25 type. Since the last newsletter was issued another make of transistorized ringing generator has been placed in service at the Bentley Creek Exchange of the North Pennsylvania Telephone Company (Pennsylvania 522). This generator is the Lorain TK-5 type. It was installed December 22, 1958, and is operating satisfactorily to date.

Both makes of generators are rated at 25 watt output. Desirable features in these generators are: they operate on C0 48 volt battery; voltage up to full rated load holds up satisfactorily; and they can be set for any of the three sets of frequencies used which are harmonic, decimonic or synchromonic. The trials are intended to give REA data as to the life and reliability of transistorized ringing generators. The 25 watt output is sufficient for most REA borrowers' central offices. Fifty watt sizes can be supplied if required for large offices.

#### Revised REA Form 511, Construction Contract

The recently revised Form 511 has gone to the printer and it is expected to be available about February 1, 1959, and required for use after March 15, 1959.

#### Central Office Contact Cleaning Fluid

A Dow Chemical Company fluid called Chlorothene was mentioned in Newsletter No. 17, December 1957, as being satisfactory for C.O. contact cleaning.

A product has been called to the attention of REA, marketed by American Writing Ink Company, Inc. under the trade name "Kleerite" and bearing the identification "Chlorothene" in bold letters. This product contains "trichlorothene," has toxic effects, is not considered acceptable for use in cleaning contacts in telephone central offices and should not be confused with the Dow Chemical Company product.

## Right-of-Way Maintenance

Use of RC units (cutting and stump spraying) began during the last six months of 1957. Since then varying results in resprouting control have been reported.

During the first six months of 1958 there were 1367 RC units included in approved bids. These represent 259 miles of right-of-way, or 20% of the total right-of-way clearing units bid during the period. Costs have been moderate and use is expected to increase.

Percent of kill during the first year, based on the small number of reports received, has ranged widely, anywhere from 50 to 90%. Resprouting of a portion of the cut stumps and brush in the first growing season after spraying may be expected. Some of the growth may be expected to die without further treatment.

Clearing the right-of-way either by manual or mechanical means only prepares the right-of-way for the use of chemicals for brush control. The chemical treatment supplied by the RC unit should be considered as the initial step in right-of-way control.

Subsequent treatments are usually necessary to gain and continue control. The second year partial treatment of the right-of-way may be required and later spot treatment as indicated by growth will be needed. With cutting, stump spraying, and subsequent spot treatment as required the right-of-way growth can be kept under control and no further cutting should be necessary. Careful attention to right-of-way growth will reduce annual maintenance costs.

The purpose of the dye requirement in the RC unit is to color the sprayed areas for a short period of time to enable the inspector or resident engineer to schedule the inspection work rather than having to follow the spray equipment while the spraying is being done.